SWBAT: describe the doppler effect

Jan 4-7:20 AM

Concept Sheet

~ 7 rows when we're done...

We'll fill in two terms (rows) today.

Concept	Meaning	Sym-bol	Units	Picture
FREQUENCY	HOW MANY PER UNIT OF TIME FREQ = # / TIME	f, f = 1/T	hertz, Hz = 1/sec	00:01
PERIOD	HOW MUCH TIME FOR ONE. PERIOD = TIME / #	T, T = 1/f	seconds, sec.	TIME
TRANSVERSE: WHEN THE MEDIUM VIBRATES ACROSS THE DIRECTION THE WAVE TRAVELS.				
LONGITUDINAL: WHEN THE MEDIUM VIBRATES ALONG THE DIRECTION THE WAVE TRAVELS.				
AMPLITUDE	HOW FAR FROM THE MIDDLE.	A	meters, m	
WAVELENGTH	HOW FAR FOR ONE "BACK & FORTH"	LAMBDA, λ	meters, m	
WAVESPEED	DISTANCE OF A WAVE / TIME OF A WAVE	V	meters/second, m/s	TIME

Feb 18-6:50 AM

SECA Physics
Friday 25 April 2014

Welcome!!!

H. Leslie Grebe

* Pick up:
  - white board, eraser, crayon
  - blue concept sheet
  - slip of paper (for later)

Centering

Opening Questions:

Ever heard of the Doppler Effect? How would you describe it?

Sep 7-7:04 AM

Train whistles:

http://www.youtube.com/watch?v=i6Hno_u8FHg

http://www.youtube.com/watch?v=8PpQcDNgGzM

Fire trucks:

http://www.youtube.com/watch?v=imoxDcn2Sgo

What's happening (BESIDES louder and quieter)???

Where else do we see this?

Feb 11-8:46 AM

This is called the DOPPLER EFFECT:
Frequency changes when the source and observer move compared to each other!

WHY???

http://lectureonline.cl.msu.edu/~mmp/applist/doppler/d.htm

What does it look like when the source is standing still?

EVENLY SPACED CIRCLES GOING OUT

What happens when the source moves?

STILL CIRCLES GOING OUT, BUT CLOSE TOGETHER IN FRONT, SPREAD OUT IN BACK

http://astro.unl.edu/classaction/animations/light/dopplershift.html

What does the observer experience?

MORE FREQUENT WHEN COMING TOWARDS

Does it matter which is moving?

NO! TOWARDS: FREQ ↑
AWAY: FREQ ↓

Feb 11-8:49 AM

SOUND: AMPLITUDE — LOUD
CLOSER = LOUDER
FARTHER = QUIETER
] DEPENDS ON DISTANCE

DOPPLER EFFECT

PITCH → FREQUENCY
HOW OFTEN AIR VIBRATES YOUR EAR

→ DEPENDS ON MOTION

Apr 25-8:28 AM

Demos:

- My doppler box -- person swinging it doesn't hear much difference?

http://www.animations.physics.unsw.edu.au/jw/doppler.htm

Bike rider...

Train app

http://www.planetseed.com/node/20145

Feb 11-8:59 AM

Explain: What is the Doppler Effect?

Why does it happen?

frequency

waves / vibrations

wavelength

period

away / towards

Apr 25-7:25 AM

Daily 3 Questions

CP: Standing Wave worksheet was due!

* Every day except test/project days
* 3 Questions on the topics of the day
* Main source of daily points
* I am happy to give credit when I have no concerns about someone giving or getting help with the answers.

Your can't get your points if you don't have your NAME!!!

Name	Period
1.	
2.	
3.	

Sep 9-7:32 AM

1) What's the name for the effect of a moving sound source?

DOPPLER

2) When a sound source is coming towards you the pitch seems
A) higher
B) lower
C) about the same

3)What's one place in life you encounter this effect?

TRAIN, RACE CAR, AMBULANCE, . . .

Apr 25-7:25 AM